THE SEWAGE DISPOSAL.

Dr. N. B. Emerson's Views Expressed.

A MOST INTERESTING LECTURE.

Where Danger Lurks—The Treatment of Nonputrescible Matter—Proper Street Cleaning First—Sewerage Afterwards—Disinfection—Conditions.

Honolulu has reason to be congratulated that it has not committed itself to an antiquated system of sewerage, but is still free to choose and adopt the best.

Sanitary engineering is a progressive science and has made immense strides in the last two decades.

I presume there are many large cities that would be glad to occupy our position of freedom to choose, but they are in a sense handicapped by the expensive system to which they are already committed.

Take the city of Paris, for instance. In that vast metropolis the system in use, is the result of growth from and adaptation of works and methods that are heirlooms from the hoary past, with a result that is anything but satisfactory.

Says Mr. Waring, ("Sewerage and land drainage," p. 220 and 222) "Much has been said and written about the majestic sewers of Paris. Viewed solely as underground conduits of well constructed masonry the main sewers of this city are indeed majestic, and all of the recent work has been executed with rare skill. Concerning the lateral sewers, especially those of old construction the same cannot be said. The main "collecteur" under the Rue de Rivoli, which is the source of the impressions that the casual traveller brings away concerning these works, is periodically cleansed and whitewashed, and on certain days, when everything is in order, it is entered by a few favored visitors. I have never seen this sewer, but I have walked for some miles through other important sewers of Paris, wading nearly to my knees in sluggish filth, and then bringing away a somewhat different impression from that made on the "favored visitors."

The knowledge thus gained has been supplemented by official reports and by conversations with engineers of the city since then, and especially by the discussions of the Sanitary Commission that was charged with the formulating of recommendations for the improvement of the general sanitary condition of the city of Paris. My conclusion is that the only lesson to be learned from these sewers is a caution against the repetition of similar works elsewhere.

As sewers, they perform in a very slight degree the duty which I have been taught to regard as a most important one. While they remove rain water and a large volume of water derived from the copious washing of the surface of the streets, they are in relatively few cases connected in any manner with the fouler drains of houses. The cesspool system is still substantially universal, and the wastes of water closets, etc., are almost entirely stored in them, with the general result of making Paris far from cleanly or healthy.

The Sanitary Commission have recommended extensive improvements and modifications of the sewer system, which have not yet been put into execution, and which, when fully carried out, will still leave much to be desired."

The sewerage of London, which, like that of Paris, is the combined system, is also the growth of generations. "It includes," says Mr. Waring, "an enormous amount of old work much of it very bad." The intercepting sewers which flank each side of the Thames and conduct the immense volume of sewage to Barking and Crossness, about twelve miles below London Bridge, together with the pumping and discharging works alone represent an investment of about $30,000,000.

Yet the outcome of the system is no better than in Paris. The situation in these cities may be compared to that presented by a large sugar plantation which has built up a plant at an enormous expense and too late wakes up to the fact that it is not satisfactory, not economical; to continue with the same plant involves great waste, and to throw away and try again is a matter of enormous expense.

The Separate System of Sewerage.

1st The prime feature of this system is that rain and storm water are excluded from the sewer pipes intended for the transportation of sewerage proper.

This method avoid, first, the embarrassment which is seen to arise from the entrance of earth, sand and coarse rubbish into the sewer pipes, and the obstruction, or stoppages, resulting therefrom.

It would follow of course from the introduction of the separate system that definite provision would have to be made for the removal of surface and storm water, these being denied admission to the sewer pipes of the separate system.

Authorities on the subject assure us, however, that the problem of making separate provision for this waste water is attended with less difficulty than when it is poured into the same conduits with sewage proper.

If proper attention is given to paving and putting into solid condition the gutters of our streets these may without detriment be relied upon to carry off a large part of the storm water in the future as they have in the past.

There can be no doubt however that short sewers for storm water will be needed here and there.

This is an enormous gain.

2d. As a result of this exclusion of storm water and the waste of the streets, it has been found possible to reduce very greatly the size of the sewer pipe.

The great bulk of the maxim flow that any time enters the sewer in the combined system, it must be remembered, is made up of surface wash and storm water.

Exclude this, and the maxim tide in a sewer shrinks to very ordinary dimensions.

A sewer pipe of eight, ten or twelve inches calibre at the most is found capable of receiving and transporting the sewage proper of a large town, with a steady and uninterrupted flow.

3d. Another point in favor of the Separate System is that the amount of water received into the sewer pipe remains nearly a constant quantity every day in the year, and all the year round.

The flow that enters it is not subject to those immense fluctuations which represent the difference between the precipitation of water in time of drought and the heaviest rainfall.

The volume of sewage proper in any community is found to be practically that of the water used for domestic purposes. It results from this that the size of the main sewer pipe, or pipes, in the Separate System may be determined by gauging the water consumption of the city.

4th. Another advantageous result of the Separate System is the fact that as the sewer pipes in this system are much smaller than in the Combined System, piping of iron and of glazed ware can economically be used in place of the huge conduits of masonry required by the Combined System.

This is a gain from many points of view. The smooth interior of an iron or vitrified earthen pipe, when properly jointed, offers less resistance from friction, other things being equal, than it is possible to secure in the case of a conduit constructed of brick and mortar. It is accordingly found that a sewer pipe in the Separate is much less liable to obstruction than in the Combined System.

Iron or vitrified pipes will also do their work satisfactorily with a smaller gradient than a brick sewer. This is a consideration of the greatest importance in the sewerage of a place that is very flat, as are the lower parts of Honolulu.

5th. The expense of the small-pipe sewers used in the Separate System is comparatively so small, being only a fraction of the outlay required for the large sewers of the Combined System, as to bring this system within the reach of many towns which would otherwise be altogether debarred from the use of any system of sewerage.

6th. The separate system has also another capital advantage over the combined system, in that it does away at once and entirely with the necessity for privy vaults and cesspools. It proposes to connect each house, or establishment, directly with the sewer pipe, so that all domestic wastes and foul waters that are properly classed as sewage are emptied at once into an iron or vitrified pipe of not less than four inches in diameter, says Mr. Waring, and passed along in continuous and uninterrupted flow to the main outlet or outlets of the sewer-trunk.

7th. In order to insure this uninterrupted and continuous flow throughout the whole system and prevent the possibility of obstruction, an automatic flush tank is placed at each dead end of a sewer pipe, the periodic overflow of which at certain regulated intervals absolutey flushes and sweeps out all the matters below. These flush tanks, which may contain four or five hundred gallons apiece, can be regulated so as to discharge at any desired interval of time, say every 12, or 18, or 20 hours. Their mechanism is simple, but automatic. They are arranged so that when full the accumulated water is discharged at once, and with a rush.

To quote from Mr. Waring, the City of Pawtucket is sewered on a sort of semi combined system, street water being kept out of the extended laterals, but roof water being taken in generally.

The work was done in the best and most expensive manner. Mr. Sweet said: "I consider the flush tank the life of a small-pipe system of sewers, for without it the system would be expensive, troublesome, and unless the greatest diligence is exercised it will surely fail. I had a good opportunity to test the value of flush tanks.

(To be continued.)

THE CIRCUS LAST NIGHT.

Tent Packed to the Doors—People Well Pleased.

An Excellent Performance and Large Returns—Mr. Wirth's Thanks.

Mr. Harry Wirth, proprietor of the circus, was a very busy man last night, for he had a big crowd of people to look after—more, perhaps, than ever before.

What the receipts were could not be ascertained as the committee could not get returns from the different persons who had tickets for sale.

The regular performance by the circus company was given and, besides, there were extra attractions by the Glee Club and the Hawaiian Comedy. Sylvester Kala ma as the Hawaiian clown, sang some songs besides doing some clever acting.

In speaking of the great number of people present last night Mr. Wirth said to an ADVERTISER reporter: "It is really astonishing how the circus continues to draw and I must say that Honolulu is the greatest show town I have ever been in.

"I would be glad if you will thank the people of Honolulu, as well as the other islands through the columns of your paper, for the uniformly kind treatment they have accorded me as well as the company since we arrived here nearly four months ago.

"You know, of course, how we have been waiting here through, what seemed to be, an interminable period for a steamer to take us to Japan. We have, perforce of this circumstance, given innumerable "last performances," and I can realize that the public could very easily, and should, grow tired of it. I have wearied at reading the announcements and I did not intend that it should be so, but so long as the public was anxious to see the performance I was glad to open the doors. The last performance by which I shall benefit will be given in a matinee to the children tomorrow. In the evening Messrs. Burns and Price will take a benefit, at which a number of amateurs, including Mr. Finney of the Bulletin, will take part, and, by the way, Mr. Finney is the best club swinger I ever saw anywhere.

"Now, then, tell the public for me that the treatment I have received at their hands has been such that the Hawaiian Islands will always have a warm spot in my heart. My business relations here have been most pleasant. I hope I have the good will of every one, because I expect some time within the next two years to return with a much larger company.

"What I tell you of my feelings toward the people is sincere."

A canvass among the druggists of this place reveals the fact that Chamberlain's are the most popular proprietary medicines sold. Chamberlain's Cough Remedy, especially, is regarded as in the lead of all throat trouble remedies, and as such, is freely prescribed by physicians. As a croup medicine, it is also unexcelled, and most families with young children keep a bottle always handy for instant use. The editor of the Graphic has repeatedly known Chamberlain's Cough Remedy to do the work after all other medicines had failed.—The Kimball S. D. Graphic. For sale at 25 and 50 cents per bottle by all druggists and dealers. BENSON, SMITH & Co., Agents for H. I.